DATE: April 1, 1965

TO: Distribution CFN: 65-213 MJO: 342

FROM: Phasolver Systems Project Office - [redacted] STAT

SUBJECT: Linear Phasolver Development Program -
Phase II System Test Procedure

The test procedure for the Phase II System tests is enclosed.

Revision 1, April 6, 1965

Revision 2, April 12, 1965

STAT [redacted]

Copies to:

STAT [redacted]

Declassification Review by NGA

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Approved For Release 2006/03/16 : CIA-RDP78B04770A001800010057-1

LINEAR PHASOLVER DEVELOPMENT PROGRAM:

PHASE II SYSTEM TESTS

General Test Conditions and Special Instructions

1. Ambient Temperature: 68° F ± 1° F
2. Ambient Relative Humidity: Within the range 30-50% but controlled to ± 5% at set point.
3. System shall be soaked at constant temperature for several hours prior to any tests.
4. Number of heat sources in room should be kept to a minimum:
   One test operator (two operators during balance)
   One Electronics subsystem including 100 mc counter and crystal oscillator.
5. Precaution should be taken to prevent hands or other parts of body from touching the plates during the test period to minimize thermal changes (glass temperature coefficient ≠ 0).
6. Gloves are to be worn when handling gage blocks.

Pattern Identification

1. The Model 915B-1 pattern hereafter will be referred to as Pattern I.
2. The two single bow tie patterns will be referred to as Pattern IIA and IIB.
3. The double bow tie pattern, which is IIA and IIB connected in parallel will be referred to as Pattern III.

1.1 Test Conditions

1.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

1.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

1.2 Measure Co, Cv, and compute Co/Cv for Patterns I, IIA, IIB and III with the outputs taken from the coupler patterns.

1.3 Measure Co, Cv, and compute Co/Cv for Patterns I, IIA, IIB and III with the outputs taken from the driver patterns.

1.4 Review results.

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2.1 Test Conditions and Procedures

2.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

2.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

2.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

2.1.4 Counter readings are to be recorded as the range of readings seen for each plate position: Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

2.1.5 Output to be taken from the coupler patterns.

2.2 Accuracy with Equal Amplitudes and Phase Quadrature Drive Signals - Pattern I

2.2.1 Adjust the amplitudes and phases of the drive signals such that the amplitudes are equal within ±0.0001 vrms and the phases are in quadrature within ±10 nanosecs.

2.2.2 Perform an accuracy run over a pole pair span (one mm travel) starting at 7 mm. The 7 millimeter position is defined as the position of the driver pattern with respect to the coupler pattern such that the start of the sinusoidal driver pattern variation is 19 mm ±1 mm from the outboard

edge of the outermost coupler bar of the coupler pattern. The actual system output shall be recorded for the following positions: 7 mm,71/8,72/8,73/8, 74/8,75/8,76/8,77/8, 8 mm. Compute the system error: correct system output minus actual system output.

2.2.3 Repeat 2.2.2 four times. To be accomplished directly upon completion of 2.2.2 without interruption.

2.2.4 Review the results of 2.2.2 and 2.2.3.

2.2.5 Perform an accuracy run over a pole pair span (one mm travel) starting at 287 mm. The actual system output shall be recorded for the following positions: 287 mm, 287 1/8, 287 2/8, 287 3/8, 287 4/8, 287 5/8, 287 6/8, 287 7/8, 288 mm. Compute the system error: correct system output - actual system output.

2.2.6 Repeat 2.2.5 four times. To be accomplished directly upon completion of 2.2.2 without interruption.

2.2.7 Review the results of 2.2.5 and 2.2.6.

2.3 Accuracy with Equal Amplitudes and Phase Quadrature Drive Signals - Patterns IIA, IIB, and III.

2.3.1 Repeat 2.2 for each of the above patterns.

2.4 Balance, Accuracy, and Test Repeatability - Pattern I

2.4.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

2.4.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

2.4.3 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error, (zero system error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

2.4.4 Repeat 2.4.3 four times. To be accomplished directly upon completion of 2.4.3 without interruption.

2.4.5 Review the results of 2.4.3 and 2.4.4.

2.5 Balance, Accuracy, and Test Repeatability - Patterns IIA, IID and III

2.5.1 Repeat 2.4 for each of the above patterns.

3.1 Test Conditions

3.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

3.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

3.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

3.1.4 Counter readings are to be recorded as the range of readings seen for each plate position: Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

3.1.5 Output to be taken from the coupler patterns.

3.1.6 Energize alternate sections of Patterns IIA and IIB to represent a phasolver pattern with increased spacing of individual pattern segments.

3.2 Accuracy with Equal Amplitudes and Phase Quadrature Drive Signals

3.2.1 Adjust the amplitudes and phases of the drive signals such that the amplitudes are equal within ± 0.0001 vrms and the phases are in quadrature within ± 10 nanosecs.

3.2.2 Perform an accuracy run over a pole pair span (one mm travel) starting at 7 mm. The 7 millimeter position is defined as the position of the driver pattern with respect to the coupler pattern such that the start of the sinusoidal driver pattern variation is 19 mm ± 1 mm from the outboard edge of the outermost coupler bar of the coupler pattern. The actual system output shall be recorded for the following positions: 7 mm,71/8,72/8,73/8, 74/8,75/8,76/8,77/8, 8 mm. Compute the system error: correct system output - actual system output.

3.2.3 Repeat 3.2.2 four times. To be accomplished directly upon completion of 3.2.2 without interruption.

3.2.4 Review the results of 3.2.2 and 3.2.3.

3.3 Balance, Accuracy, and Test Repeatability

3.3.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

3.3.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

3.3.3 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized

system error (zero system error at 265 mm). Use the following displacements in millimeters: 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

3.3.4 Repeat 3.3.3 four times. To be accomplished directly upon completion of 3.3.3 without interruption.

3.3.5 Review the results of 3.3.3 and 3.3.4.

TEST 4 Driver Coupled Outout

4.1 Test Conditions

4.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

4.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

4.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

4.1.4 Counter readings are to be recorded as the range of readings seen for each plate position: Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

4.1.5 Output to be taken from wide output band on the driver plate. The coupler pattern should be connected to the wide band on the coupler plate.

4.1.6 Use the pattern which produced the best accuracy results in 2.2, 2.3, 2.4 and 2.5.

4.2 Accuracy with Equal Amplitudes and Phase Quadrature Drive Signals

4.2.1 Adjust the amplitudes and phases of the drive signals such that the amplitudes are equal within $\pm$0.0001 rvms and the phases are in quadrature within $\pm$10 nanosecs.

4.2.2 Perform an accuracy run over a pole pair span (one mm travel) starting at 7 mm. The 7 millimeter position is defined as the position of the driver pattern with respect to the coupler pattern such that the start of the sinusoidal driver pattern variation is 19 mm ± 1 mm from the outboard edge of the outermost coupler bar of the coupler pattern. The actual system output shall be recorded for the following positions: 7 mm, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8 mm. Compute the system error: correct system output - actual system output.

4.2.3 Repeat 4.2.2 four times. To be accomplished directly upon completion of 4.2.2 and 4.2.3.

4.2.4 Review the results of 4.2.2 and 4.2.3.

4.3 Balance, Accuracy, and Test Repeatability

4.3.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

4.3.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

4.3.3 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized

system error (zero system error at 265mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

4.3.4 Repeat 4.3.3 four times. To be accomplished directly upon completion of 2.4.3 without interruption.

4.3.5 Review the results of 4.3.3 and 4.3.4.

5.1 Test Conditions

5.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

5.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

5.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

5.1.4 Counter readings are to be recorded as the range of readings seen for each plate position. Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

5.1.5 Output to be taken from the coupler patterns.

5.2 Pattern I - Balance, Accuracy, and Test Repeatability

5.2.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole-pair (9 positions).

5.2.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

5.2.3 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error, (zero system error at 265 mm). Use the following

displacements in millimeters: 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

5.2.4 Introduce 0.0002 inch/inch of driver skew with respect to the coupler pattern.

5.2.5 Measure resultant error within a pole pair span starting at 0 mm.

5.2.6 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: 0, 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

5.2.7 Rephase balance for minimum error within a pole pair span starting at 7mm.

5.2.8 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

5.2.9 Review results.

5.2.10 Introduce a second value of skew selected on the basis of results obtained in 5.2.1 through 5.2.9.

5.2.11 Repeat 5.2.1 through 5.2.9.

6.1 Test Conditions

6.1.1 Gap = 0.0035 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

6.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

6.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

6.1.4 Counter readings are to be recorded as the range of readings seen for each plate position. Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

6.1.5 Output to be taken from the coupler patterns.

6.2 Pattern I - Tilt Axis A (Defined in 6.2.2)

6.2.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

6.2.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

6.2.3 Introduce 10 arc seconds of tilt with respect to rotation about an axis which is perpendicular to an axis along the line of travel.

6.2.4 Measure resultant error within a pole pair span starting at 7 mm.

6.2.5 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

6.2.6 Rephase balance for minimum error within a pole pair span starting at 7 mm.

6.2.7 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133,

140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

6.2.8 Review results.

6.2.9 Return to zero tilt.

6.2.10 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

6.2.11 Introduce a second value of tilt selected on the basis of the results obtained in 6.2.4 through 6.2.8.

6.2.12 Repeat 6.2.4 through 6.2.9.

6.3 Pattern I - Tilt Axis B (Defined in 6.3.3)

6.3.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use sixteen intervals within a pole pair (17 positions).

6.3.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

6.3.3 Introduce 30 arc seconds of tilt with respect to rotation about an axis along the line of travel.

6.3.4 Measure resultant error within a pole pair span starting at 7 mm.

6.3.5 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

6.3.6 Rephase balance for minimum error within a pole pair span starting at 7 mm.

6.3.7 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm). Use the following displacements in millimeters: , 7 , 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

6.3.8 Review Results.

6.3.9 Return to zero tilt.

6.3.10 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

6.3.11 Introduce a second value of tilt selected on the basis of the results obtained in 6.3.4 through 6.3.8.

6.3.12 Repeat 6.3.4 through 6.3.9.

6.4 Patterns IIA or IIB, III, and Separated Pattern

6.4.1 Repeat 6.2 and 6.3 for the above patterns.

7.1 Test Conditions

7.1.1 Gap = 0.0015 inch nominal. Record measured value (height of feet with respect to surface of driver plate).

7.1.2 Set up plates for minimum skew. Record all pertinent set-up dimensions.

7.1.3 Adjust preamplifier gain for predetermined signal amplitude at ZCD input. This value is to be used for all tests and is to be checked prior to start of any test.

7.1.4 Counter readings are to be recorded as the range of readings seen for each plate position. Example:

Position (CM)	Counter Reading (Microseconds)
10.000	100.00 - 100.03

7.1.5 Output to be taken from the coupler patterns.

7.2 Pattern I

7.2.1 Perform a phase balance starting at 7 mm. Record final balance readings. Compute system error. Use 8 intervals within a pole pair (9 positions).

7.2.2 Photograph the stop pulse on a 20 nanosec/cm sweep and record the system output counter reading range for one position of the transducer.

7.2.3 Set gap at 0.0035 inch. During time interval that the gap change is made, the electronics shall remain on, with standard test conditions, maintained. The

amplitude of the drive signals shall be measured prior to removal and after reinstallation of the driver plate.

7.2.4 Measure resultant error within a pole pair span starting at 7 mm.

7.2.5 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero error at 265 mm). Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

7.2.6 Rephase balance for minimum error within a pole pair span starting at 7 mm.

7.2.7 Perform an accuracy run for 280 mm travel. Record actual system output; compute the system error (correct system output minus actual system output); compute the normalized system error (zero system error at 265 mm).

Use the following displacements in millimeters: , 7, 7 1/8, 7 2/8, 7 3/8, 7 4/8, 7 5/8, 7 6/8, 7 7/8, 8, 15, 30, 45, 60, 75, 90, 105, 125, 132, 132 1/8, 132 2/8, 132 3/8, 132 4/8, 132 5/8, 132 6/8, 132 7/8, 133, 140, 155, 170, 185, 200, 215, 230, 250, 257, 257 1/8, 257 2/8, 257 3/8, 257 4/8, 257 5/8, 257 6/8, 257 7/8, 258, 265, 280, 287 mm.

7.2.9 Review results.

7.3 Measure Co, Cv, and compute Co/Cv for Patterns I, IIA, IIB, and III with the output taken from the coupler pattern.

7.4 Measure Co, Cv, and compute Co/Cv for Patterns I, IIA, IIB, and III with the output taken from the driver pattern.

7.5 Patterns IIA or IIB

7.5.1 Repeat 7.1 and 7.2 for Patterns IIA or IIB.

7.6 Pattern III

7.6.1 Repeat 7.1 and 7.2 for Pattern III.

7.7 Separated Pattern

7.7.1 Repeat 7.1 and 7.2 for separated pattern used in Test 3.

7.8 Repeat 7.1 through 7.7 using a gap setting of 0.007 inch in 7.2.3.

(35-166)

Nineteenth Monthly Progress Report

Model 933 Phasolver System

9 March 1965

1. Summary

The following items were accomplished during this period:

1.1 The coupler and driver parts were subjected to a preliminary inspection at [redacted] then sent to [redacted] for detailed inspection. [redacted] procedures were prepared by [redacted] The results indicate that the ruling of the coupler bars is exceptionally good with a maximum non-cumulative scale error of about 55 ppm @ 60° ± 0.1°F over the total coupler length of 546 mm. The correlations between the measured sine functions in the driver master used to make the part and the finished part were within the range of about 2 to 10 microns.

1.2 It has been decided that the coupler and driver parts are of sufficient quality to warrent proceeding with Phase II system tests. The final assembly of the driver and coupler into the Phase II system test fixture has started.

1.3 A formal request for program completion extension to 1 May 1965 based on the schedule submitted with the Eighteenth Monthly Progress Report dated 8 February 1965 has been submitted to the contracting officer.

2. Work Planned for the Next Report Period

2.1 Complete the assembly of the Phase II system test fixture.

2.2 Prepare the Phase II system test procedure.

2.3 Start Phase II system tests.